

wherein the transversely aligned pressure relief trench may be opened at opposed ends thereof to form a through channel. The slider of above may include a longitudinally aligned pressure relief trench. The slider of above may include a sloped pressure relief trench. The slider of above wherein the slider may include a plurality of spaced pressure relief trenches. The slider of above wherein the slider may include opposed side rails and the side rails include a pressure relief trench. The slider of above wherein the longitudinally aligned pressure relief trench may include an opened end. The slider of above wherein the trench may include a depth dimension sized so that separation of the slider and disc at the trench during contact of the slider with the disc surface is equal to or greater than  $2R_e$  to balance capillary pressure and disjoining pressure of a lubricant fluid on the disc surface. The slider of above wherein the trench may be sized to provide a slider-disc interface in the toe- dipping regime.

A slider for supporting transducer elements for a data storage system comprising: a rigid member including opposed leading and trailing edges and opposed upper and lower surfaces, the lower surface including raised bearing surfaces, the trailing edge being adapted to support a transducer element; landing pads extending from a bearing surface and adapted to define a contact interface with a disc surface; and pressure relief means proximate to a contact interface position between the trailing edge of the slider and disc surface to reduce capillary pressure of the meniscus to limit area of the meniscus. The slider of above wherein the pressure relief means may include at least one trench formed in a bearing surface and extending below a bearing surface. The slider of above wherein the trench may include a depth dimension sized so that separation of the slider and disc at the trench during contact of the slider with the disc surface is equal to or greater than  $2R_e$  to balance capillary pressure and disjoining pressure of a lubricant fluid on the disc surface. The

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slider of above wherein the trench may be sized to provide a slider-disc interface in the toe- dipping regime. The slider of above may include a transversely aligned trench. The slider of above may include a longitudinally aligned trench. The slider of above may include a sloped trench. The slider of above wherein the slider may include opposed side rails and the side rails include a trench. The slider of above wherein the slider may include a center rail and the center rail includes a trench.

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